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somewhat more simple, is, that in siliceous rocks, or in positions where calcareous fossils are exposed to siliceous waters, the terrestrial waters carrying silica, which may have entered into solution through its union with organic bodies, dissolve these fossils by their contained carbonic anhydride, and this assumption of a new burden diminishes their carrying power of other dissolved contents, and these latter are dropped at the exact moment the new solution is effected. Or, as carbonate of lime is taken up in solution silica is deposited. In the phenomenon of solutions and solvents this equilibrium of dissolved contents perhaps is not clearly proven, but seems in some cases probable.

(To be Continued.)

BIRD LIFE IN CENTRAL AMERICA.

BY DANIEL F. RANDOLPH.

A short time ago a friend of the writer was in Central America for the purpose of studying the country and its peculiar people. Ornithology is a hobby of his. Upon his return, I induced him to give me an account of his trip, which he did. The following is a transcript of my shorthand notes of his talk.

"I remember," he began, "that about the shores of the lagoon where I spent considerable time, there were great numbers of a handsome rail, which was very delicate eating, the flesh being milk white. It has a habit of skulking under the reeds and bushes on the shores during the day, and sometimes, when congregated in marshy places, makes a great noise by chattering in chorus. When shot, this bird goes through more contortions than any other bird I know of, not running away when wounded, but invariably tumbling on the ground, kicking and fluttering about in the most violent manner.

"A large red-breasted kingfisher is very common in all the lagoons and the lower part of the rivers; and blue and white garlings are seen on nearly all the shoals and creeks.

"I went along the sea-beach (by a little lagoon), among the

mangroves, and secured three bittern and a few other water-birds. Some large snipe were to be seen there, active little sandpipers ran in great numbers along the hot sands, which enclosed the lagoon. I recall shooting in the savannahs a curious little goat-sucker; and I saw there a great tree covered with the large hanging nests of the yellow-tail. I also shot a species of night-heron, which the natives call "the carpenter:" it is one of the few birds they take the trouble to shoot for eating. All around the shores were large flocks of active fly-catchers, called the "wees bird," and a small falcon is often seen perched on the tall pine trees, or winging its rapid flight across the savannah in chase of the birds on which it preys.

One evening I paddled for some distance up a creek, to shoot something for supper. Here I met for the first time the beautiful heron called "Marana"; it was sitting quietly; the glossy, deep green leaves of a shrub forming a good background to its graceful form, and it appeared very tame. Evidently the bird creation of this remote creek had not often been disturbed by human beings. Further up it swarms with bitterns, boat-bills, darters, and other water-birds. As I paddled along, the bushy trees appeared to be alive with the odd-looking boat-bills, fluttering and flying out in all directions, seemingly convulsed with laughter.

"There are two kinds of curassow; the more common is white, with a black belly; the other, known as the Queen Curassow, is checked all over in much the same manner as the tiger-bittern. It is a handsome bird when seen in the woods, and erects its elegant crest gracefully as it utters its deep note. A pair of the pretty russet-brown "jacana," with lemon-colored wing feathers, kept flying in front of me as I proceeded up the creek, alighting from time to time on the floating grass which covered the water near the bank; owing to the immense length of their toes, they are able to support themselves on this. I also met with several mud-hens, which are much esteemed in this section for food by the creoles.

"Darters bred high up the creek; their downy young being generally seen in pairs in a nest formed of sticks, usually placed on a branch overhanging the water. They dropped out as I

approached, diving and swimming about very actively. The darter seems to have much difficulty in keeping its balance when perched on trees, the feet being placed on the body considerably behind the point of equilibrium; this formation gives them great power of swimming under water, but makes them look awkward when out of that element. The neck is long and snake-like, and the beak curiously serrated, and admirably adapted for seizing fish beneath the surface. The eggs are bluish-white, with rather a chalky shell, small for the size of the bird, and considered good eating by the native creoles.

"My Woukee bittern, which I had taken from the nest when very young, gave me much amusement, especially on these long, lonely rides. When I had passed the bar, and found myself in the long tranquil swell of the open sea, he began to show symptoms of sea-sickness, being unable to sit upright, and twisting his long neck about in the most grotesque manner; at last he went below, under one of the thwarts.

"The brown pelican is commonly seen in small flocks upon the coast and lagoons, engaged in fishing, or, with a steady, powerful flight, pursuing its way to more favorable localities. Its mode of fishing is curious; the bird soars upon its broad wings to a considerable height, and then, as soon as a fish is seen, it descends, beak foremost, upon the water with a sudden wheeling evolution, and with great force; seldom, however, falling to secure its prey. At other times, the pelicans may be seen swimming like geese in the shallows, composedly spooning up the shoals of fry with their capacious beaks. The quantities of fish consumed by them must be enormous. Occasionally, a solitary individual may be visible, perched apparently in contemplative mood, upon a convenient mangrove bough. Another curious bird seen there is the boat-bill, called by the Indians, "Cooper."

"A little green heron is everywhere commonly seen by the waterside, and may be easily recognized, while yet unseen, by its loud cry of "tuk-tuk-tuk." The plumage of the cock yellow-tail is of a deep russet-brown, changing to black on the head and back, and the tail feathers are of a bright yellow; the top of the beak is coral-red, and the cheeks pale blue. They are

sociable in their habits, living and breeding in flocks, and the branches of some favorite tree may often be seen covered with their long pendent nests. The difference in size between the cock and the hen is considerable, although the plumage is the same. They are probably attracted to these plantations by the quantity of ripe "panpa" and banana. Large flocks of a small kind are seen at certain seasons of the year. I shot several, but only secured one, the undergrowth of brush and cane being so matted together by creepers and bush-ropes.

"I sometimes saw among the pines very handsome hawks. The cry of the "bean-bean" is always to be heard on the savannahs. It has a curious knob of skin at the base of the neck. In color it is a sort of dull drab, shaded underneath with white. In habits, this bird resembles the magpie, hopping on the ground and amongst the branches of the trees, in the same springy manner. The hen-hawk is very common among the pine walks in the savannahs, and large green parrots fly chattering overhead, morning and evening. Their flight is exceedingly rapid and powerful. Trogons, pigeons, and other birds were to be seen in the thickets, and a red-headed woodpecker. However, there are few land-birds there. The white crane is very shy and will not admit of a near approach. Some large snipe, and rarely, a muscovy duck, would rise from the sedge."

UPON AN UNDESCRIBED SPECIES OF MEGASCOLIDES FROM THE UNITED STATES.

BY FRANK SMITH.

Through the kindness of Mr. R. W. Doane of the Washington Agricultural College and School of Science at Pullman, Washington, I have recently received four specimens of a species of earthworm which I refer to the genus *Megascolides*. Mr. Doane writes me that this species is very abundant in that region of country and that their burrows are sometimes